

7. *Reports on the Marine Mollusca in the Collections of the South African Museum.*—By J. R. LE B. TOMLIN, M.A.

I. FAMILY TURRITELLIDAE.

(With three Text-figures.)

THE series in this family that I have examined raise several interesting and important points, which are discussed under the various species. The discovery of the habitat of *T. ferruginea* Rve. is particularly satisfactory.

The *Turritellidae* exhibit a certain amount of variability in the coiling of the shell, and this has even led to unnecessary specific segregation as in the case indicated below. This variability is only what one might be led to expect from a consideration of their affinity with the *Vermetidae*.

I venture to suggest that the term *scalarescence* might be conveniently employed to denote this tendency to looser coiling, so well exemplified in the form that has been differentiated as *T. excavata* Sow. J. T. Marshall remarks of the British species *T. communis* Risso that “the lower whorls are invariably more loosely coiled than the upper, with a deeper suture.”

Some species in the family seem to have habitually a broader and a slenderer form, as, for instance, *T. communis* Risso and its var. *gracilis* Jeff., and I am almost convinced that this dimorphism is likewise exemplified locally by *T. carinifera* Lam. and *T. kowiensis* Sow.

The types of the new species are in the South African Museum.

Turritella ferruginea Reeve.

Conch. Icon., v, pl. vii, fig. 32, May 1849.

The rediscovery of this fine species enables us to assign it for the first time to a definite locality. Reeve described it from the Cuming

collection, with locality unknown. It is now a fair inference that Cuming's specimens were dredged by the "Samarang" on the Agulhas Bank.

It is, of course, well known that until the voyage of the "Challenger" no lien was placed by government authorities on material collected by such expeditions: a report was usually published in due course and a certain number of new species described, but the actual material usually passed into the captain's hands, and was by him sold, given away, or retained at will. In the case of the "Samarang" the captain was Sir Edward Belcher, and the cream of the material eventually passed into the hands of Cuming and Lombe Taylor. Belcher was a rough, roistering, old-style sailor, who bothered very little about localities and relied mainly on his memory. I have handled a good deal of material ex coll. Belcher in the British Museum (Natural History) and can testify to the absence of any sort of data, and Dr. Dall of Washington tells me that he heard much the same account of Belcher from Carpenter, who knew him personally. The monotonous repetition of "China Sea" or "Eastern Seas" as a locality for new species in the Mollusca of the "Samarang" seems to tell a similar tale.

It may be wondered why such a splendid novelty was not described in the record of the voyage. It is now known that the Zoology of the "Samarang" appeared in parts, and that the approximate date of publication of part 7, which contained the genus *Turritella*, was August 1850, though the title-page of the Mollusca bears the date 1848. *Turritella ferruginea* had therefore been "out" for fifteen months, and would not be included in the "Samarang" volume, which only took cognisance of new species.

It may be interesting to note that the ship returned to England in December 1846, and the first reference in print to its Mollusca* occurs in April 1847.

Distribution.—*T. ferruginea* Rve. has been dredged from False Bay (juv.) to Algoa Bay, 30–54 fathoms; off Cape Point in 250 fathoms (South African Museum).

The freshest specimens are the young ones from False Bay and Agulhas Bank and an adult from Sebastian Bay: those from off Cape Point are dead and partly calcined.

The largest example, which has lost the uppermost 4 or 5 whorls, measures 97 mm. in length and 26 mm. in breadth at the base, and its aperture 13×18 mm.

* Reeve, Conch. Icon., iv, Chiton sp. 54.

Turritella sanguinea Reeve.

Conch. Icon., v, pl. vi, fig. 27, May 1849.

T. puncticulata Sowerby, P.Z.S., 1870, p. 253.

T. punctulata, D. (by error), Marine Shells S. Africa, p. 39, pl. v, fig. 102, 1892.

Reeve described this species from California, but no such shell is known from that region.

A comparison of the types, which came from the Belcher collection,

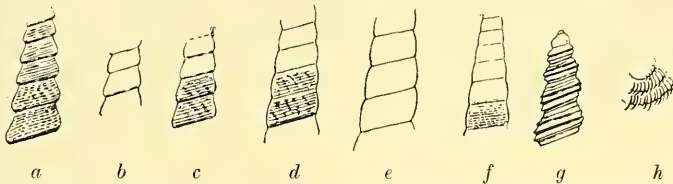


FIG. 1.—*T. sanguinea* Rve. a-f, half nat. size; g, juvenile, enlarged; h, portion of operculum, enlarged.

with Sowerby's type of *puncticulata*, shows that the two shells are identical, the former specimens being somewhat immature and slightly "doctored." Probably Sowerby was misled by the false locality of *sanguinea* into describing it over again. In 1889 he recorded* a "somewhat doubtful" specimen of *T. sanguinea* Rve. from South Africa.

This species is much subject to scalarescence, and two very different forms are figured by Martens† and Sowerby.‡ I am able to illustrate this variation by a series of admirable drawings by Dr. Barnard of the South African Museum.

The former author compares *puncticulata* with *sanguinea*, and concludes that they are nearly related but distinct, mainly owing to a difference in the number of spiral ribs. The comparison is, however, discounted by the fact that his only exponent of *sanguinea* was a specimen from the Paetel collection, which may possibly not have been *sanguinea* at all: moreover, both the character of the ribs and their number is variable even in examples dredged together; small accessory riblets keep on developing between the larger ones; these riblets increase in size on subsequent whorls and become large ribs, but even on the last whorl small riblets continue to make their appear-

* J. of C., vi, 152.

† Deutsch. Tief-See Exp., vii (1), pl. iv, fig. 9.

‡ Marine Shells S. Africa, pl. v, fig. 102.

ance. Martens also mentions one or two other differences which seem of trivial importance, *e.g.* a slightly slower increase in the breadth of the whorls.

Animal living in the last five whorls, which are shut off from the earlier ones by one or two partitions (Barnard).

The operculum has scarious edges to each whorl, with beaded riblets radiating from the nucleus and projecting as short hair-like processes from the scarious edges.

Dredged from False Bay and the Agulhas Bank eastwards to Cape St. Blaize, 18-45 fathoms (South African Museum): Algoa Bay (Tief-See Exp.). Live specimens were taken by the "Pieter Faure" off Cape Infanta and Struijs Point.

The largest specimen, which lacks about ten of the early whorls, is 100 mm. in length with a maximum diameter of 23 mm.

Turritella carinifera Lamareck.

Anim. sans Vert., vii, p. 59, August 1822.

Mossel Bay: off Cape Point, 130 fathoms; coast of Zululand 13 fathoms (South African Museum).

It is a shallow-water species, and the three from 130 fathoms had probably been washed down by currents. From a living example washed ashore in False Bay it was ascertained that the operculum has the margin of each whorl entire, not fimbriate, and has not the radiating riblets of *sanguinea*.

Turritella kowiensis Sowerby.

Proc. Malac. Soc., iv, p. 6, pl. 1, fig. 12, 2nd April 1900.

There is every probability that this will eventually prove to be a slender form of *carinifera* Lam. In addition to the consistently smaller diameter, the keel which runs round the middle of the whorls is but slight, whereas in *carinifera* it forms a very strong raised cord. Otherwise the sculpture in the two forms is identical. Up to the present no specimen has been found exceeding 23 mm. in length; adults are probably much larger, and their absence is probably due to the meagre amount of systematic dredging in suitable localities. Until the discovery of an adequate series of connecting links, it seems better to keep the two forms separate

Turritella natalensis Smith.

Ann. Natal Mus., ii (2), 198, pl. vii, fig. 11, 20th December 1910.

The type specimen of this in the British Museum is a much worn shell (Durban, Westcott) and lacks the apex, so that presumably Smith's description *primus anfractus laevis* was taken from the Isezela specimen. One of the present has the apex absolutely perfect, and it appears under a 1-in. power to be bulbous, glassy white, smooth, but not polished: the next whorl has a single, central, obsolete keel, and the whorl after that has three. The protoconch seems to consist of four whorls, the fourth having three strong spirals and several subsidiary ones. On the basal whorls the general sculpture scheme consists of five or six stronger spirals with two or three finer threads between, and extremely fine oblique axial lines which very quickly disappear by abrasion.

The coloration consists of very irregular zigzag axial streaks of reddish-brown on a white ground. The dotted effect of which Smith speaks is mainly due to beach-rolling.

These specimens, which look as if they may have been taken alive, were dredged off the Umvoti River, Natal, in 27 fathoms. None of them is quite as large as the type.

Turritella declivis A. Adams and Reeve.

Zool. Samarang, Moll., p. 48, pl. xii, fig. 10, 1850.

T. excavata Sowerby, P.Z.S., 1870, p. 252.

On the series now before me I have no hesitation in uniting the above two species. It is certainly a case of normal and scalarescent forms, and I am able to illustrate the transition with another admirable series of drawings by Dr. Barnard.

The typical form has absolutely flat whorls increasing with complete regularity, each whorl being flush with the preceding one and the suture merely an impressed line.

In the scalarescent form each whorl swells out considerably above the suture and projects noticeably beyond the upper half of the succeeding whorl, the suture itself forming quite a deep channel. The whole shell is broader throughout.

The original description of *declivis* appears in the "Samarang" report, and the locality "China Sea" must be rejected as erroneous. The types of *declivis* and *excavata* are now in the British Museum,

both acquired from the Lombe Taylor collection in 1874. It may be safely surmised that L. Taylor had them from Belcher, and that the locality "China Sea" was a product of his not very fertile memory. The type of *excavata* is labelled "Agulhas Bank."

Distribution.—False Bay and Agulhas Bank to East London in from 30 to 124 fathoms, but hitherto not taken alive. There is a

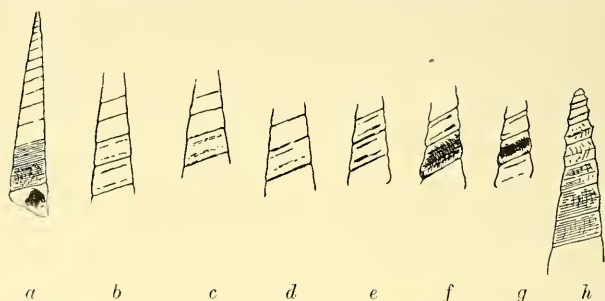


FIG. 2.—*T. declivis* A. Ad. & Rve. + *excavata* Sow. series. *a-g*, half natural size; *h*, juvenile, enlarged.

single specimen in the Cape Town Museum which is said to have been picked up in Hout Bay, on the west shore of the Cape Peninsula (South African Museum).

The largest measures 89 mm. in length, with a basal diameter of 16 mm.: the Hout Bay shell measures 70×17 . Of the *excavata* form there is a specimen 69×19 , and the "Valdivia" dredged one 85×21 . All these have lost some of the apical whorls. In some young shells from 49 fathoms off Great Fish Point the protoconch is nearly perfect, but much eroded; the whorls of the protoconch have a strong central carina throughout, and there are traces of spiral striations between the carina and the sutures.

Turritella salisburyi, n. sp.

Shell elongate, rather thin; remaining whorls twelve (the apex being broken off in both examples), increasing rather rapidly; the colour of the first six or seven whorls is whitish to yellowish, but gradually changes to a pinkish hue, which deepens to a dark flesh colour on the last two or three; below the suture on the last six whorls is a regular series of alternate white and dark spots. The sculpture consists of rather fine, regular, spiral lirae, the spaces between the lirae being almost flat and varying considerably in breadth; in the type specimen there are twenty-four of these lirae on the penultimate, and the

same number on the antepenultimate whorl; on the first five whorls there is a tendency for the alternate interspaces to be considerably raised and to form strong cords. The sutures are rather shallow.

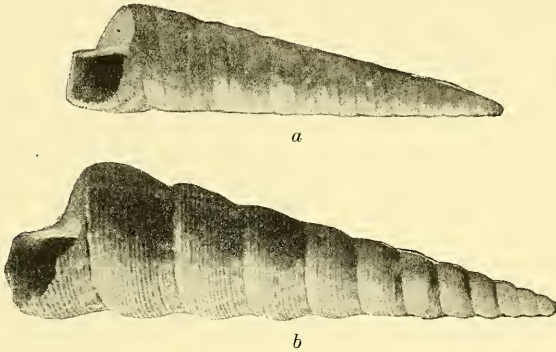


FIG. 3.—*a*, *Turritella chrysotoxa*, n. sp. $\times 3\frac{3}{5}$; *b*, *Turritella salisburyi*, n. sp. $\times 2\frac{1}{4}$.

though the lower half of each whorl is distinctly tumid; periphery rounded, very slightly angular; aperture rotundate.

Length, 34 mm.: max. diam., 10 mm.

Hab., off East London in 30–50 fathoms, two specimens (South African Museum); Port Alfred on the beach (Turton).

In general appearance this new species is much like a miniature *T. sanguinea* Rve., and in the type the interspaces are regularly spotted with darker colour as in that species. They differ, however, radically in sculpture; this is unusually regular for a *Turritella*, and the equality in the size of the spirals on the later whorls is particularly noticeable.

Turritella chrysotoxa, n. sp.

This is a small glossy species, of a rather light yellow-brown colour, marked on the last five or six whorls with very numerous arcuate growth-lines. There are fourteen whorls remaining—the first is glassy white (all that is left of the protoconch); the next three are encircled with a strong keel on the lower third of the whorl; each of the others has three conspicuous raised lines which are equidistant from one another and from the sutures; in the spaces between these lines two or three weak spirals occur on the last few whorls. Sutures very slightly impressed, the whorls being much flattened.

Periphery bluntly right-angled with a raised line immediately above it in addition to the three already described.

Aperture almost square.

Length, 16 mm. : max. diam., 4 mm.

Hab., off the Illovo River, Natal, in 27 fathoms, two specimens (South African Museum).

The shells may not be quite adult, but are abundantly distinct from any other South African form.

The specific name is derived from *τόξον*, a bow, in allusion to the fine bow-shaped lines of growth.